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EPA Superfund
Record of Decision Amendment:

LEETOWN PESTICIDE
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LEETOWN, WV
04/07/1992

Text:
AMENDMENT TO THE RECORD OF DECISION LEETOWN PESTICIDES

DECLARATION

SITE NAME AND LOCATION

Leetown Pesticides
Leetown, West Virginia

STATEMENT OF BASIS AND PURPOSE

This decision document presents the Amendment to the Record of Decision for the Leetown Pesticides Site (the Site) in Leetown, West Virginia which was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision document explains the factual and legal basis for amending the remedy for this Site. The information supporting this decision is contained in the Administrative Record for this Site. The West Virginia Waste Management Section of the Division of Natural Resources concurs with the selected remedy.

DESCRIPTION OF THE AMENDMENT

DECLARATION STATEMENT

It has been determined in the revised Risk Assessment that the DDTcontaminated soils at the Site do not pose an unacceptable risk to human health or the environment. As such, the removal and offsite disposal of the Crimm Orchard Packing Shed and its contents have mitigated the threats posed by the Site to human health and the environment and eliminated the need to conduct any additional remedial action. Therefore, it has been determined that no further action is necessary to ensure protection of human health and the environment.

DECISION SUMMARY for the RECORD OF DECISION

LEETOWN PESTICIDE

1. Site Name, Location, and Description

The Leetown Pesticide Site (Site) is located in extreme northeastern West Virginia, approximately eight miles south of Martinsburg, West Virginia.

Initially, the study area was defined as the Bell Spring Run, Blue Spring Run, and Gray Spring Run watersheds (see Figure 1). During the initial stages of the Remedial Investigation (RI), eight areas of concern were investigated, relative to surface disposal of pesticides, agricultural use of pesticides, and landfilling. Based on an analysis of the sampling results, the Site was later defined as comprising three separate areas: the former Pesticide Pile Area, the former Pesticide Mixing Shed, and the Crimm

Orchard Packing Shed (see Figure 2).

The Record of Decision (ROD) for the Site was signed on March 31, 1986. The ROD addressed the risks associated with contents of the Crimm Orchard Packing Shed and the soils in the areas of the former Pesticide Pile, the formerPesticide Mixing Shed, and the Crimm Orchard Packing Shed which are contaminated primarily with DDT and its metabolites. This document amends the ROD based on a revised Risk Assessment which indicates that the risks associated with the soils are within the acceptable risk range.

The lead agency for the remedial action at the Site is the United States Environmental Protection Agency (EPA). The State of West Virginia Waste Management Section (WMS) is the support agency.

Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) S 117 and Section 300.435(c)(2)(ii) of the National Oil and Hazardous Substances Contingency Plan (NCP), the lead agency is required to propose an amendment to the ROD if a fundamental change to the remedy is necessary and to allow the public the opportunity to comment on the proposed change.

2. Highlights of Community Participation

The Proposed Remedial Action Plan (Plan) was made available to the public on February 6, 1992. EPA provided a public comment period which began on February 6, 1992 and closed on March 6, 1992 to solicit comments on the Plan. A public meeting was held on February 20, 1992, at the National Fisheries Center in Kearneysville, West Virginia to answer any questions the public may have had and to facilitate public input on the Plan.

As provided in Section 300.825(a)(2) of the NCP, this ROD amendment and all documents that form the basis for the decision to modify the ROD will be included as part of the Administrative Record File maintained at the following locations:

Old Charles Town Public Library
Ms. Anita Trout, Librarian
200 East Washington Street
Charles Town, West Virginia

U.S. EPA Region III Docket Room
Ms. Anna Butch
841 Chestnut Building, 9th floor
Philadelphia, PA 19107

3. Site History

The contaminants of concern at the Site are pesticides, including DDT and its metabolites, DDD and DDE, and the alpha, beta, delta, and gamma isomers of hexachlorocyclohexane (HCCH). Gamma HCCH is also known as Lindane. DDT was used in a spray application to control insect damage to the fruit in the orchards in the area until its use was prohibited by EPA in 1972.

In 1975, pesticide-contaminated debris from a fire at the Miller Chemical

Company in nearby Ranson, West Virginia was disposed on a portion of the former Jefferson Orchard, at what is now referred to as the former Pesticide Pile Area (Figure 3). The Jefferson Orchard formerly occupied 170 acres on both sides of Route 15/1. The portion of the orchard to the east of Route 15/1, which contains the former Pesticide Pile Area, was purchased by the Robinson family. The present ownership of the remainder of the orchard lies with the U.S. Fish & Wildlife Service (USF&WS), represented locally by the Leetown National Fisheries Center. The contamination at the former Pesticide Pile Area is the residue left after the Miller Chemical Company removed approximately 160 cubic yards of the pesticide-contaminated debris in June 1983.

The former Pesticide Mixing Shed, which is also on the that portion of the former Jefferson Orchard which was purchased by the Robinson family, was used during the active operation of the Jefferson Orchard to formulate pesticides for use at the orchard and the contamination in this area is due to drippage and spillage attributed to these actions. The present remains of the shed include the stone foundation for the first floor and a 12-foot square concrete pad on the southern end of the foundation.

The eastern portion of the Crimm Orchard Packing Shed was used forthe formulation of pesticides for application at the former Crimm Orchard and containers of pesticides (most of which were open and leaking) remained in the shed. The rest of the shed served as a

packing shed for processing of the crop from the orchard.

4. Reason For Issuing The ROD Amendment

The remedy selected in the 3/31/86 ROD was dismantling and offsite disposal of the eastern portion of the Crimm Orchard Packing Shed and its contents and anaerobic biodegradation of the contaminated soils from the former Pesticide Pile Area, the former Pesticide Mixing Shed, and from under the Crimm Orchard Packing Shed. A total estimated volume of 3,600 cubic yards were to be consolidated and placed in treatment beds to be constructed onsite.

Treatability studies for the bioremediation of the soils were performed on two separate occasions. The first treatability study, testing the effectiveness of anaerobic biodegradation, was performed from May 1986 to April 1987. This study was not successful in meeting the cleanup levels contained in the Record of Decision. As such, a literature search was undertaken to identify other potential biological treatment methods. Based on the literature search and the responses to a Request for Proposals soliciting treatability study vendors, EPA decided to perform treatability studies on two other biological treatment processes. The two processes were a process using white-rot fungus and another process using aerobic/anaerobic biodegradation. These treatability studies were performed from April 1989 to January 1990. Again, neither of these two treatment processes were able to successfully reduce the levels of DDT and its metabolites to the cleanup levels specified in the ROD.

As part of the second phase of treatability studies, EPA reviewed the cleanup levels contained in the Record of Decision to determine if

theycontinued to be appropriate to protect human health and the environment. During this review it was discovered that the methodology used in the initial Risk Assessment completed in 1986 was no longer utilized by EPA in determining risks to human health. Specifically, the initial Risk Assessment was based on the maximum human exposure to the contaminants at the Site, including the maximum observed concentrations. However, according to EPA's current Risk Assessment Guidance for Superfund dated December 1989, EPA/540/1-89/002, quantitative risk estimates should be based on Reasonable Maximum Exposure scenarios rather than the worst-case exposure scenarios. Because the initial Risk Assessment appeared to be overly conservative compared to the 1989 risk assessment guidance, EPA decided to recalculate the risks to human health using the Reasonable Maximum Exposure scenarios. Based on the revised Risk Assessment, EPA has determined that the contaminants of concern at the Site do not pose an unacceptable risk.

5. Summary of Site Risks

The dismantling and offsite disposal of the eastern portion of the Crimm Orchard Packing Shed and its contents was started on February 24, 1988 and completed on April 22, 1988. The contents of the shed included a spray wagon, straw, hay, and bags and drums of pesticides, many of which were open and/or leaking. The flooring of the shed, the wall materials located below the top of the floor level, the concrete pedestals supporting the shed, and the spray wagon were disposed of in a permitted hazardous waste landfill. All contaminated clothing, spent respiratory canisters, materials in contact with the floor (other than soil and/or pesticide product) including hay and straw, and empty drums generated from repackaging were also disposed of in the hazardous waste landfill. The bags and drums of pesticides were repackaged into thirteen 30 gallon plastic drums, shipped offsite and incinerated, along with eleven plastic drums containing decontamination fluids. The dismantled roofing and wall materials above the floor elevation were disposed of in a permitted solid waste landfill. A temporary soil cover was placed over the area of the dismantled portion of the shed after all the materials were disposed offsite and this and all other disturbed areas were then hydroseeded.

The exposure routes utilized in the initial Risk Assessment were based on a farmer working at the Site and included dermal contact with contaminated surface soils and inhalation of contaminated particulates emitted during tilling of the soil at the Site. Because the pesticides and the contaminated materials from the Crimm Orchard Packing Shed were removed, they no longer posed a risk to human health or the environment. As such, the risks associated with the Packing Shed and its contents are not included in the revised Risk Assessment.

Based on the maximum human exposure scenarios in the initial Risk Assessment performed in 1986, the human health risks at the Site were calculated to be 1 x 10[-4] for the inhalation exposure route and 5 x 10[-4] for the dermal contact exposure route. As stated previously, EPA has recalculated the risks associated with the contaminants of concern at the Site, using the Reasonable Maximum Exposure scenarios as suggested in the Risk Assessment Guidance for Superfund. The human health risk using the present day guidance has been calculated to be 9 x 10[-6]. The chemical concentration in the revised Risk Assessment is comprised of the samples obtained during the RI

and an additional 127 samples that were collected in May 1986 to better define the aerial extent of pesticide contamination.

Exposure Assessment

The goal of the exposure assessment is to determine the type and magnitude of human exposure to the contaminants present at, and migrating from, the Site. The exposure assessment was conducted to estimate the Site risks ifremedial action is not taken.

To determine if human and environmental exposure to the contaminants of concern might occur in the absence of further remedial action, an exposure pathway analysis was performed. An exposure pathway has four necessary elements: 1) a source and mechanism of chemical release; 2) an environmental transport medium; 3) a human or environmental exposure point, and; 4) a feasible human or environmental exposure route at the exposure point. The potential for completion of exposure pathways at the Site is described in the following sections.

Transport Pathways

For any particular site, there may be a variety of potential exposure routes, with either simple or complex pathways. The simple pathways are of primary significance at the Site. Such simple exposure routes for humans generally include consumption of ground water, bathing in ground water, consumption of surface water, bathing or play in surface water, ingestion of soil, dermal exposure to soil, and inhalation of fugitive dust emissions. The dermal exposure to soil and inhalation of fugitive dust emissions are the pathways that are the most important at the Site, based on Site constituents, contaminant distribution, and the contemplated future use scenarios for the Site.

Potential Exposure Points

The potential exposure level experienced by the receptor population will be a function of the concentration of the contaminants at the exposure point and the duration of exposure. Potential human exposure to contaminants could be by five exposure routes: direct exposure to source material, or direct exposure to ground water, surface water, soil, and air.

The Site and the land on which it is situated (that portion of the former Jefferson Orchard property that was bought by the Robinson family) are open space areas that are not being used at present. The most likely future use scenario for the Site is farmland, based on the Jefferson County zoning. A residential exposure scenario was considered but not used as the likely future use scenario at the site in the Risk Assessment. Consistent with the initial Risk Assessment, the revised Risk Assessment utilized the following potential exposure points for a farmer working at the Site: dermal contact with contaminated surface soils and inhalation of contaminated particulates emitted during tilling.

The potential points of exposure described above are based on a series of general assumptions as well as on specific assumptions for the different scenarios. These assumptions are derived from the following EPA guidance

documents:

1) Health Effects Summary Tables - Fourth Quarter - FY 1989;
2) Risk Assessment Guidance for Superfund Volume 1, Human Health Evaluation Manual (Part A).

The following assumptions, taken from the above guidance documents, have been used in the revised Risk Assessment for the Site:

- chemical concentrations are based on the upper 95 percent confidence interval on arithmetic mean concentrations of indicator chemicals;
- lifetime exposures are based on individuals living an entire lifetime of 70 years at the Site with an exposure duration of 30 years;
- a soil to skin adherence factor of 1.45 mg/cm[2];
- an absorption factor of 0.05, based on the highly soiladsorptive nature of the pesticides.
- adults weigh 70 kg;
- a skin surface area available for contact of 2948cm[2]/event, which is equivalent to an adult male receptor wearing shortsleeved shirts, pants, and shoes;

The exposure frequency for the former Pesticide Pile Area was determined to be 10 percent of the exposure frequency for the entire Robinson property, based on the approximate ratio of area of the former Pesticide Pile Area to the Robinson property. The exposure frequency for the Robinson property is based on an assumed contact rate of 2 days per week, 4 weeks per month, and 3 months per year or 24 exposures events per year, with each event constituting a full day. Therefore, the total exposure frequency for the former Pesticide Pile Area is 2.4 events (days) per year.

Reference Doses and Cancer Slope Factors were identified for the contaminants of concern based on a review of EPA's Integrated Risk Information System (IRIS) and the Health Effects Assessment Summary Tables. Table 1 provides the reference dose and cancer slope factors utilized in the revised Risk Assessment.

For comparison, the following more conservative assumptions were made in the initial Risk Assessment:

- the maximum soil concentrations were assumed as the chemical concentrations at the exposure point in order to assume worst-case scenarios;
- an exposure duration of 40 years;
- a soil to skin adherence factor of 2.77 mg/cm[2];
- an absorption factor of 0.1;

- an exposure frequency of 120 events (days) per year.

Exposure Point Concentrations

Data gathered during the RI are adequate to predict potential exposure concentrations if the Site has reached steady-state conditions (i.e., when the rate of transport of contaminants is stable and in equilibrium with the environment). In the absence of an established trend in historical data indicating the contrary, the Site was considered to have reached steady-state conditions.

The upper 95 percent confidence limit on the arithmetic average (or the maximum concentration if the upper confidence limit exceeded the maximum concentration) was selected as the representative concentration. Upper 95 percent confidence limits were determined using a method for estimating confidence limits for sample populations with an unknown variance.

Toxicity Assessment

The risks estimated in the revised Risk Assessment are potential risks, based on the assumption that there will be some degree of exposure in the future.

Cancer potency factors (CPFs) were developed by EPA's Carcinogenic Assessment Group to estimate excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. CPFs, which are expressed in units of (mg/kg-day)[-1], are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to provide an upper-bound estimate of the excess lifetime cancer risk associated with exposure at that intake level. The term "upper bound" reflects a conservative estimate of the risks an exposure to a chemical for which a CPF has been developed. Use of this approach makes underestimation of the actual cancer risk highly unlikely. CPFs are derived from the results of human epidemiological studies or chronic animal studies from which human factors are estimated based on animal-to-human extrapolation and by applying uncertainty factors which would not underestimate the potential for adverse effects to occur.

Reference doses (RfDs) were developed by EPA to indicate thepotential for adverse health effects from exposure to chemicals exhibiting noncarcinogenic effects. RfDs, which are expressed in units of mg/kg-day, are estimates of lifetime daily exposure levels for humans, including sensitive individuals, that is not likely to be without an appreciable risk of adverse health effects. Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) can be compared to the RfD. RfDs are derived from human epidemiological studies or animal studies to which uncertainty factors have been applied (e.g., to account for the use of animal data to predict effects on humans). These uncertainty factors help ensure that the RfDs will not underestimate the potential for adverse noncarcinogenic effects to occur.

Excess lifetime cancer risks are determined by multiplying the intake level with the cancer potency factor. These risks are probabilities that are generally expressed in scientific notation (e.g., 1x10[-6] or 1E-6). An excess lifetime cancer risk of 1x10[-6] indicates that, as a plausible upper

bound, an individual has a one in one million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year lifetime under the specific exposure conditions at a site.

The excess lifetime cancer risk for the future use exposure scenario determined under the Reasonable Maximum Exposure is 9 x 10[-6] from dermal contact or inhalation of particulates with contamination from DDT and its metabolites. In other words, if no remedial action is taken, nine additional people per one million have a chance of contracting cancer as a result of exposure to the DDT and its metabolites if, in the future, the area is farmed. This is well within the EPA acceptable risk range of 10[-4] to 10[-6].

Potential concern for non-carcinogenic effects of a single contaminant in a single medium is expressed as the hazard quotient (HQ) (or theratio of the estimated intake derived from the contaminant concentration in a given medium to the contaminant's reference dose). The Hazard Index (HI) is calculated by adding the HQs for all contaminants within a medium or across all media to which a given population may reasonably be exposed. The HI provides a reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media.

To determine the human health effects from the non-carcinogenic contaminants, EPA uses the HI. Any media with a cumulative HI greater than 1.0 is considered to pose a risk to human health. With an HI of 0.1 there are no human health effects from the non-carcinogenic contaminants.

In addition to the DDT, its metabolites, and the HCCH contaminates detected at the Site, arsenic and lead were also detected at levels exceeding the "natural" background values. These values are due to the use of lead arsenate as a pesticide in the former orchard areas. The levels detected in the former Pesticide Pile Area are similar to the levels detected in other portions of the former Jefferson Orchard in the vicinity of the Site. The average concentration of arsenic and lead in the former Pesticide Pile Area is 137 mg/kg and 284 mg/kg, respectively. When compared to the average concentration in the USF&WS portion of the former Jefferson Orchard (56 mg/kg arsenic and 325 mg/kg lead), there is little significant difference. Also, the levels of arsenic and lead detected at the Site are statistically comparable to typical levels in U.S. orchards.

According to the draft Annotated Technical Reference, EPA refrains from listing pesticide application sites on the National Priorities List because the registration and cancellation provisions of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) address contamination from these sites. The Annotated Technical Reference also states that EPA will generallylist sites on the NPL that result from pesticide spills, leaks, and improper disposal. Because the lead and arsenic in the former Pesticide Pile Area have both varying levels and levels comparable to other orchard areas appears to show that the lead and arsenic detected in the former Pesticide Pile Area may be indicative of the use of lead arsenate as a pesticide on the former orchard and not due to spillage, leakage, or improper disposal.

6. Documentation of Significant Changes

The Proposed Plan, which identified No Further Action as EPA's preferred alternative for the Site, was released for public comment on February 6, 1992. EPA reviewed all written and verbal comments submitted during the public comment period and determined that no significant change to the preferred alternative identified in the Proposed Plan was necessary.

LEETOWN PESTICIDES SITE
Leetown, Jefferson County, West Virginia

RESPONSIVENESS SUMMARY
March 1992

This Responsiveness Summary documents public concerns and comments expressed during the public comment period. The summary also provides EPA's responses to those comments. The information is organized as follows:

- Overview
- Summary of Questions Received During Public Meeting and EPA's Responses
- Summary of Comments Received During Public Meeting and EPA's Responses
- Summary of Comments Received During Public Comment Period and EPA's Responses

I. Overview

The public comment period for the Leetown Pesticides Site began on February 6, 1992, and ended on March 6, 1992. To facilitate commenting, EPA held a public meeting at the National Fisheries Center in Kearneysville, West Virginia on February 20, 1992.

At the meeting, EPA discussed some of the reports that were performed for the Site including the Remedial Investigation (RI) report that was completed in 1986 and the revised Risk Assessment report dated August 1990 and also presented the Proposed Plan. EPA explained that the Proposed Plan for the Site is now No Further Action. That is, the Crimm Orchard Packing Shed has been dismantled and the building materials and the contents of the shed, including containers of DDT and Lindane (some of which were leaking), have been disposed of in approved offsite facilities. Also, based on the revised Risk Assessment, EPA has determined that the soils at the former Pesticide Pile Area, the former Mixing Shed, and from below the former Crimm Orchard Packing Shed do not constitute an unacceptable risk to human health.

Local residents and officials did not object to the Proposed Plan. Rather, their comments were mostly in regard to preventing surface runoff of soil/sediment from the former Pesticide Pile Area and abandoning the wells installed for the Remedial Investigation except those utilized by the Jefferson County Solid Waste Authority to monitor their landfill.

II. Public Meeting Questions and EPA Responses

Questions as presented at the February 20, 1992, public meeting are

summarized briefly in this section of the Responsiveness Summary and are grouped according to subject. The EPA response follows each of the questions presented.

A. Has a cost estimate been developed for removal of the soils from the former Pesticide Pile Area?

EPA Response: No cost estimates have been developed for excavation and offsite disposal of the soils from any of the portions of the Site. B. Is there any long-term human health risks from exposure of the debris that was placed on the Pesticide Pile Area prior to its removal?

EPA Response: A minimum of twenty years exposure to these contaminants is the generally accepted exposure duration required to inflict carcinogenic effects. The exposures which occurred over an eight year period (1975 to 1983) were too brief and the amounts too slight to be an unacceptable cancer threat.

C. Could you tell us the total amount that has been spent and the work which has been completed for the Site?

EPA Response: Approximately $853,000 has been spent to date for the work completed at the Site including the Remedial Investigation/Feasibility Study, dismantling and offsite disposal of the Crimm Orchard Packing Shed and its contents, three soil treatability tests, and the revised Risk Assessment. The figure of $1,025,000 in the March, 1986 Record of Decision did not include the cost of the Remedial Investigation/Feasibility Study which constitutes $497,000 of the $853,000 spent on the Site.

D. After EPA completes its work at the Site can the land be plowed and used for planting?

EPA Response: Yes, that is exactly the exposure scenario the revised Risk Assessment analyzed, a farmer being exposed to the dust from plowing the land and either breathing the dust or adsorbing the dust through their skin.

E. Will anyone who purchases the land in the future be notified of what has been in the soil previously?

EPA Response: According to 20-5E-20 of the West Virginia Hazardous Waste Management Act, anyone selling or leasing land shall disclose in such deed or lease the fact that such property or the subsurface of such property was used for the storage, treatment or disposal of hazardous waste. Thus, if the owner of the Site intends to either sell or lease the land shall inform the other party that the land was used for the storage or disposal of hazardous wastes (pesticides). Since no treatment of hazardous wastes was performed at the Site, the owner would not have to indicate that.

F. Have the monitoring wells ever been tested for DDT and Lindane and will EPA sample the monitoring wells in the future?

EPA Response: The monitoring wells were installed and sampled as part of the Remedial Investigation to determine if any of the contaminants of concern were impacting the ground water in the vicinity of the Site. The

analytical results of the samples indicated that the ground water was not being impacted by the contamination at the Site. In fact, it was estimated that it would take approximately 200 years for the contaminants found at the Site to reach the ground water due to the affinity of the contaminates to cling to the soil particles and the fact that the soils in the area contain a high percentage of clay. Because of the above, EPA does not intend to sample the wells in the future and, in fact, EPA will abandon the wells.

G. Could EPA not abandon those Leetown Pesticides monitoring wells the Jefferson County Solid Waste Authority utilizes to monitor the Jefferson County Landfill?

EPA Response: Although EPA gave the Jefferson County Solid Waste Authority permission to utilize some of the monitoring wells installed for the Leetown Pesticides Remedial Investigation, EPA thought that practice had stopped. As long as it can be worked out on which monitoring wells the Jefferson County Solid Waste Authority uses to monitor the Jefferson County Landfill and they agree to maintain the wells, EPA will not abandon those wells and will allow the Solid Waste Authority to continue using the wells.

III. Summary of Verbal Comments Received at the Public Meeting

The comment made at the February 20, 1992, public meeting is summarized briefly in this section of the Responsiveness Summary. The purpose of this portion of the public meeting was to allow anyone attending to make comments on the Proposed Plan without an EPA response being made at the meeting. The EPA response follows the comment made.

A. A recent inspection of the Site has shown that the former Pesticide Pile Area and the drainageway to the road are still not vegetated. As such, surface runoff from storm events can carry sediment from the former Pesticide Pile Area and pool alongside the road where contact with wildlife, livestock, or children could occur. To prevent the further migration of sediment from the former Pesticide Pile Area a proposal was suggested as follows:

- build a diversion berm on the uphill side of the area to reduce the amount of surface runoff;
- cover the area with an impervious liner;
- cover the liner with a geotextile underlaminate to protect the liner;
- place 8 to 12 inches of crushed stone over the geotextile underlaminate;
- place 2 to 3 feet of riprap stone on top of the crushed stone.

EPA Response: EPA believes that the reason the area was not vegetated was because of elevated levels of arsenic in the soil. The arsenic is considered to be due to the use of lead arsenate during the time when the area was used as an orchard.

EPA consulted with the Northeast National Technology Center of the Soil

Conservation Service to develop a plan to vegetate the areas. Based on the conversations with the Soil Conservation Service and in accordance with the March 31, 1986, Record of Decision, EPA did excavate the top 6 inches of soil/sediment from the bare areas along the road and in thedrainageway from the former Pesticide Pile Area and place it on the former Pesticide Pile Area; placed 6 inches of topsoil over these areas; covered the former Pesticide Pile Area with 12 inches of topsoil; and hydroseeded all of these areas.

IV. Summary of Written Comments Received During the Public Comment Period

During the public comment period, three written comments were submitted: one from the District Conservationist of the Soil Conservation Service, one from the Eastern Panhandle Soil Conservation District, and one from a private citizen. The written comments will be made a part of the Administrative Record for the Site. The written comments are summarized here, along with the EPA responses. The comment from the District Conservationist of the Soil Conservation District follows up the verbal comments made at the February 20, 1992, public meeting.

A. The former Pesticide Pile Area should be covered with an impermeable liner, a geotextile membrane, 10 to 12 inches of crusher run and 2 feet of large riprap. The benefits of this work are:

- surface water will not be contaminated since it will not be in contact with the Site
- leaching will be greatly reduced since no water will be in contact with the Site
- contaminated compounds will not be in direct contact with people, livestock, or wildlife
- the stone pile will reduce the possibility of the Site being used as a homesite, play area or cropland
- the cost would be significantly lower than removal and disposal of the soil

B. The Eastern Panhandle Soil Conservation District feels that the former Pesticide Pile Area and drainageway should not be left exposed tofurther access and erosion and that EPA consider the proposal submitted by the District Conservationist.

EPA Response: In an effort to re-stabilize the area from the removal of the debris, EPA has excavated the top 6 inches of soil/sediment from the drainageway and alongside the road and placed this material on the former Pesticide Pile Area, covered the excavated areas with 6 inches of topsoil, covered the former Pesticide Pile Area with 12 inches of topsoil, and hydroseeded all of these areas. EPA developed this plan with consultation from the Northeast National Technology Center of the Soil Conservation Service. It is felt that 6 inches of topsoil in the drainageway and alongside the road would be sufficient to maintain new growth from the hydroseeding after the excavation of the 6 inches from these areas. In the

area of the former Pesticide Pile, 12 inches of topsoil should be sufficient to maintain the new growth from the hydroseeding. The drainageway and the area alongside the road were excavated in order to maintain the same elevation level in these areas and to help retain surface water runoff on the same side of the road.

EPA believes the above work, performed under the March 31, 1986 Record of Decision, meets the main objective expressed by the District Conservationist, that is, it will stop the erosion of sediment/soil from the former Pesticide Area.

C. One commenter, who had expressed an interest in the Site at the time of the Record of Decision in March, 1986, suggested that no Federal funds or personnel time be charged to the Site after March 6, 1992.

EPA Response: In accordance with the NCP, Federal funds and personnel time may continue to be charged to the Site after March 6, 1992 (the end of the public comment period). Such costs include, but are not limited to, the grading and re-vegetating of the former Pesticide Pile Area, issuing theAmendment to the Record of Decision, and deleting the Site from the NPL.

STATE OF WEST VIRGINIA
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GASTON CAPERTON
Governor

J. EDWARD HAMRICK III
Director

April 17, 1992

ANN A. SPANER
Deputy Director

Ms. Kim Hummel (3HW24)
USEPA Region III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

RE: Leetown Pesticides, Jefferson County

Dear Ms. Hummel:

This letter regards our review of the Amendment to the Record of Decision (ROD) addressing the Leetown Pesticide Site dated April 9, 1992. After reviewing this document, the Division of Natural Resources concurs with EPA's choice of No Further Action as the Preferred Alternative as identified

in the Proposed Plan.

If you have any questions, please do not hesitate to contact Mr. Riad Tannir of Waste Management Section at (304) 558-2745.

Sincerely,

J. Edward Hamrick, III
Director

JEH/RT/bo

cc: Max Robertson

SUPERFUND PRELIMINARY SITE CLOSEOUT REPORT

Leetown Pesticides
Leetown, West Virginia

I. SUMMARY OF SITE CONDITIONS

Background

The Leetown Pesticides Site is located in Leetown, Jefferson County, West Virginia. The Site is in a rural area in the extreme northeastern portion of the state, near the National Fisheries Center. The Site was proposed for inclusion on the original National Priorities List in December, 1982 and promulgated in September, 1983.

The Site is actually composed of three separate areas: the former Pesticide Pile Area, the former Pesticide Mixing Shed, and the Crimm Orchard Packing Shed. The pesticides of concern at the Site include DDT and its metabolites, DDD and DDE, and the alpha, beta, delta, and gamma isomers of hexachlorocyclohexane (HCCH). Gamma HCCH is also known as Lindane. In 1975, pesticidecontaminated debris from a fire at a local chemical company was allegedly disposed at what is now referred to as the former Pesticide Pile Area. The contamination at the former Pesticide Pile Area is the residue left after the removal of approximately 160 cubic yards of the pesticide-contaminated debris in June 1983. The former Pesticide Mixing Shed was used during the active operation of the Jefferson Orchard to formulate pesticides for use at the orchard and the contamination in this area is due to drippage and spillage attributed to these actions. The eastern portion of the Crimm Orchard Packing Shed was used for the formulation of pesticides for application at the former Crimm Orchard and containers of pesticides (most of which were open and leaking) remained in the shed.

Remedial Planning Activities

Evidence of hazardous waste activity at the Site was first brought to the attention of EPA in 1981 by representatives of the National Fisheries Center. Between 1980 and 1983 the debris pile and areas in the immediate vicinity were sampled five times, including residential wells, the Fisheries Center, the Grey and Bell springs, and the Jefferson County Landfill. Sampling for the EPA Remedial Investigation (RI) was performed between 1984

and 1985. Based on an aerial photographic survey conducted by the EPA Environmental Photographic Interpretation Survey Center (EPIC) and other information received, the RI focused on eight areas in the Leetown area relative to the surface disposal of pesticides, agricultural use of pesticides, and landfilling. After reviewing the results of the RI sampling, the Site was defined to include the former Pesticide Pile Area, the former Pesticide Mixing Shed, and the Crimm Orchard Packing Shed. The maximum concentrations detected in these areas are 250 mg/kg DDT, 16 mg/kg DDD, 110 mg/kg DDE, 9 mg/kg alpha-HCCH, and 0.2 mg/kg gamma-HCCH. All of the contamination detected was within the top twelve to eighteen inches. Lead and arsenic were also detected at levels which exceed background, but this was attributed to the use of lead arsenate as a pesticide in the former orchard areas. A complete summary of the results of site analysis can be found in the RI report, dated March, 1986.

The Risk Assessment performed as part of the RI determined that the risks to human health from DDT and its metabolites, and the isomers of HCCH were 1 x 10[-4] for the inhalation exposure route and 5 x 10[-4] for the dermal contact exposure route. In accordance with the guidance in effect at the time, the Risk Assessment utilized the maximum human exposure scenarios. Risks to human health associated with exposure to lead and arsenic were not determined because these contaminants, although above background, were the result of the proper application of pesticides, which is excluded from remediation under CERCLA.

Seven alternatives were evaluated in the Feasibility Study (FS)developed for the Site, including No Action, No Action with Monitoring, Soil Cap, Multi-Media Cap, Onsite Landfill, Offsite Disposal, and Onsite Treatment (anaerobic degradation).

The public comment period was held from March 6, 1986 to March 27, 1986. At that time, EPA identified Onsite Treatment as the preferred alternative. This alternative consisted of consolidating the contaminated soils from the three source areas (an estimated volume of 3,600 cubic yards) into a specially-prepared treatment bed to be constructed onsite and saturating the soils with water to promote biological degradation of the pesticides. After the pesticide levels have been reduced to acceptable levels, the soils would be returned to the excavated areas. Also, the contaminated portions of the Crimm Orchard Packing Shed were to be dismantled and its contents were to be disposed offsite.

On March 31, 1986, the Regional Administrator signed a Record of Decision (ROD), selecting onsite treatment of the contaminated soils with a soil cleanup level of 300 ug/kg. Also selected was offsite disposal of the packing shed and its contents.

On December 22, 1986, EPA processed a work assignment to the REM III contractor to develop a work plan for the design of the dismantling and offsite disposal of the Crimm Orchard Packing Shed. The final work plan was issued on February 13, 1987. The design was then completed on September 4, 1987.

EPA entered into a Superfund State Contract (SSC) with the state of West Virginia on August 18, 1987. The SSC provided that the state pay 10% of the

remedial action costs. Since there were no operation and maintenance requirements associated with this remedial action, it was not made a part of the SSC.

The successful low bidder was identified by the REM III contractor based on the receipt of bids from prospective subcontractors. The contract award was delayed because of difficulties in implementing the EPA Off-Site Disposal Policy (Procedures for Planning and Implementing Off-Site Response Actions, EPA Memorandum, May 6, 1985). After EPA approval of the off-site disposal facilities, the subcontract was awarded on February 11, 1988, to Bryson Industrial Services, Inc.

A treatability study for the anaerobic biodegradation of the soils was performed from May 1986 to April 1987. However, this treatment process was not able to meet the cleanup levels contained in the ROD. As such, a literature search was undertaken in 1988 to identify other potential biological treatment methods. Based on the literature search and the responses to the September 1988 Request for Proposals soliciting treatability study vendors, EPA decided to perform treatability studies on two other biological treatment processes. The two processes were a process using white-rot fungus and another process using aerobic/anaerobic biodegradation. These treatability studies were performed from April 1989 to January 1990. However, neither of these two treatment processes were able to reduce the levels of DDT and its metabolites to the cleanup levels specified in the ROD.

As part of the second phase of treatability studies, EPA reviewed the cleanup levels contained in the ROD to determine if they continued to be appropriate to protect human health and the environment. During this review it was discovered that the methodology used in the initial Risk Assessment completed in 1986 was no longer utilized by EPA in determining risks to human health. Specifically, the initial Risk Assessment was based on the maximum human exposure to the contaminants at the Site, including the maximum observed concentrations. However, according to EPA's current Risk Assessment Guidance for Superfund dated December 1989 (RAGS), quantitative risk estimates should be based on Reasonable Maximum Exposure scenarios rather than the worst-case exposure scenarios. Because the initial Risk Assessment appeared to be overly conservative compared to the 1989 risk assessment guidance, EPA recalculated the risks to human health using the Reasonable Maximum Exposure scenarios. The excess lifetime cancer risk determined in the revised Risk Assessment, dated August 1990, are 9 x 10[-6]. As such, EPA has determined that the contaminants of concern at the Site do not pose an unacceptable risk.

Consistent with the EPA determination that the risks associated with the soils at the Site are within the acceptable risk range, EPA amended the March 31, 1986, ROD on March 31, 1992. The Amendment to the ROD selected No Further Action. The disposal of the Crimm Orchard Packing Shed and its contents mitigated all of the threats posed by the Site to human health and the environment. Therefore, no further action is necessary to ensure protection of human health and the environment.

Remedial Construction Activities

The dismantling and offsite disposal of the eastern portion of the Crimm Orchard Packing Shed and its contents was started on February 24, 1988 and completed on April 22, 1988. The work activity at the Site was not continuous during this period, but intermittent and subject to the weather, availability of analytic results, and approval from the disposal facilities to ship the waste offsite.

The contents of the shed included a spray wagon, straw, hay, and bags and drums of pesticides, many of which were open and/or leaking. The flooring of the shed, the wall materials located below the top of the floor level, the concrete pedestals supporting the shed, and the spray wagon were disposed of in a permitted hazardous waste landfill. All contaminated clothing, spent respiratory canisters, materials in contact with the floor (other than soil and/or pesticide product) including hay and straw, and empty drumsgenerated from repackaging were also disposed of in the hazardous waste landfill. Two dump trailers containing the above material were shipped for disposal on April 19, 1988.

Each bag and drum of pesticide material was sampled for compatibility testing. Also, composite samples of the solid pesticides, liquid pesticides, decontamination waste were analyzed for waste characterization to determine the acceptability of the waste at the incineration facility. The bags and drums of pesticides were then repackaged into thirteen 30 gallon plastic drums, shipped offsite and incinerated, along with eleven plastic drums containing decontamination fluids. All of the above material was shipped offsite on April 19, 1988.

The dismantled roofing and wall materials above the floor elevation were disposed of in a permitted solid waste landfill since they were not in contact with the spilled pesticide material. Two 20 cubic yard roll-off box loads of these materials were shipped on March 1, 1988 and one 20 cubic yard load was shipped on March 25, 1988.

Following the removal and disposal of all the above material, the contractor removed all temporary facilities such as trailers, decontamination equipment, and temporary roads. The site was then covered with twelve inches of clean topsoil, and regraded to ensure proper drainage. This area was then hydroseeded to prevent soil erosion. At the request of the property owner, the other disturbed areas were not seeded.

The final inspection of the project was held on April 25, 1988 and the field work was certified to be complete by the REM III inspector. On June 8, 1988, the subcontractor's work was accepted by the REM III Team as being final and complete.

On July 22, 1988, the REM III contractor submitted a final Remedial Action Report signifying successful completion of all constructionactivities. The report documents and discusses the four change orders which were issued throughout the project. Including the change orders, the total remedial action contract cost was $77,239.50.

Community Relations Activities

There was very little interest from the public and the local officials in

the activities at the Site. Regardless, EPA held public meetings for the Proposed Plans for both the ROD and the ROD Amendment, as well as issuing Fact Sheets. EPA informed the public of the closeout during the public meeting for the ROD Amendment.

II. DEMONSTRATION OF QA/QC FROM CLEANUP ACTIVITIES

The remedial action contract was carefully reviewed by EPA and the REM III contractor for compliance with all EPA quality assurance/quality control (QA/QC) procedures and protocol. Accordingly, only EPA quality methods or, where no EPA methods existed, other Federally approved methods were used.

All procedures and protocol followed for the sampling, compatibility testing, and analytical procedures which were used to determine the acceptability of the pesticide materials at the incineration facility are documented in the Technical Specifications for REM III Hazardous Waste Remediation Activities, Leetown Pesticide Site, dated June 1987.

The QA/QC program utilized throughout the remedial action was sufficiently rigorous and was adequately complied with to enable the determination by EPA and the REM III contractor that all analytical results reported are accurate to the degree needed to assure satisfactory execution of the remedial action consistent with the ROD.

III. MONITORING RESULTS

The ROD and ROD Amendment did not provide any provisions for monitoring of the Site because the scope of the work was well defined (i.e.dismantling and offsite disposal of the eastern portion of the Crimm Orchard Packing Shed and its contents). The remedial action work did not include any excavation or removal of contaminated soil at the area nor did it include any ground water monitoring. As such, the contract for the remedial action did not include any monitoring provisions.

IV. SUMMARY OF OPERATION AND MAINTENANCE

All of the work associated with the dismantling and offsite disposal of the Packing Shed were completed on April 22, 1988. There are no operation and maintenance requirements associated with the remedial action for the Site.

V. SUMMARY OF FIVE YEAR REVIEW STATUS

Section 300.430(f)(4)(ii) of the National Contingency Plan states that "if a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action." Further, OSWER Directive 9355.7-02, dated May 23, 1991, states that five-year reviews will be conducted at sites for which the remedy was selected prior to the passage of SARA at which the remedy, upon attainment of the ROD cleanup levels, will not allow unlimited use and unrestricted exposure.

Based on the revised Risk Assessment and as stated in the ROD Amendment, the

DDT, DDE, DDD, and the isomers of HCCH remaining in the soil do not pose an unacceptable risk to human health and the environment. Therefore, five-year reviews are not appropriate for the Site.

VI. PROTECTIVENESS

All of the completion requirements for this site have been met as specified in OSWER Directive 9320.2-3A. Specifically, the eastern portion of the Crimm Orchard Packing Shed has been dismantled. The pesticides and decontamination fluids have been sent to an offsite facility for incineration. The flooring of the shed, a spray wagon located inside the shed, wall materials located below the top of the floor level, and concrete pedestals supporting the shed were sent to an approved hazardous waste landfill. Also sent to the hazardous waste landfill were all contaminated clothing, spent respiratory canisters, materials in contact with the floor (other than soil and/or pesticide product), and empty drums generated from repacking. The roofing and wall materials above the floor elevation were disposed of in a solid waste landfill.

III. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

Although Remedial Action at the Leetown is complete, the monitoring wells installed for the Remedial Investigation must be properly abandoned. These wells were only used during the RI to determine if any of the pesticide contamination had reached the ground water. The monitoring wells were not used during the remedial action nor were they used to monitor the effectiveness of the remedial action. The ROD Amendment does not require a 5-year review, so the monitoring wells would not be needed for future monitoring of the Site. Jefferson County Landfill, which borders the Site, has indicated to EPA that they would like to use and maintain some or all of these wells to monitor their landfill. Once Jefferson County has designated which wells they can use the remainder of the wells will be abandoned by EPA. As such, the proper abandonment of these wells is not considered part of the remedial action. This well abandonment is planned for completion by June 30, 1992.

A bibliography of all reports relevant to the completion of this site under the Superfund program is attached. These documents are available by calling the Regional office at (215) 597-9800.